

## **Remarks**

Claim 26 has been amended to incorporate the features of claim 34. Claims 18, 19, 22 to 25 and 34 have been canceled without prejudice and with the understanding that Applicants may pursue the subject matter encompassed by the canceled claims in a future continuation application. No new matter has been introduced by the amendment to claim 26. After entry of the amendments, claims 26, 27 and 30 to 33 will be pending.

### **1. Rejections under 35 U.S.C. § 102**

#### **A. § 102(b) - Kato**

Claims 18, 19, 22-27 and 30-34 have been rejected by the Examiner as being anticipated by JP 09-082360 to Kato ("Kato") as evidenced by the Handbook of Batteries by Linden ("Linden"). In responding to Applicants' arguments as filed in the previous response, the Examiner asserts that in Applicants' invention, the divinyl sulfone is not contained in a liquid electrolyte, citing page 4, lines 15-18 of the specification for teaching that the divinyl sulfone has a function of forming a passivation film. Further, the Examiner contends that Kato teaches at paragraphs [0046] – [0048] an electrolytic solution comprising a lithium salt dissolved in a nonaqueous solvent. In addition, the Examiner cites paragraph [0078] of Kato for showing that, like the divinyl sulfone of Applicants' invention, the divinyl sulfone of Kato forms a film.

Applicants respectfully disagree with the Examiner's assessment of the applicability of Kato to Applicants' claimed invention. Nevertheless, in an effort to expedite prosecution of this application, Applicants have canceled claims directed to non-aqueous electrolytes. Further, the amendment to claim 26 that incorporates the features of claim 34, now cancelled, regarding crystal structure, is neither taught nor suggested by Kato. For example, Kato teaches at paragraphs [0044] – [0045] the use of a carbonaceous material as a negative-electrode active material capable of doping and de-doping lithium and lithium alloy, wherein the carbonaceous material is acknowledged as difficult to be graphitized and has a lattice spacing ( $d_{002}$ ) of 3.70 Angstroms (*i.e.*, 0.370 nm) or more. This spacing is larger than the 0.335 to 0.340 nm spacing range claimed by Applicants in claim 26 as amended. The Examiner's reliance on Linden's disclosure of a lattice spacing of 0.335 to 0.340 applies only to a graphite structure, and not to the non-graphitized carbon structure obtained by Kato. Thus, Kato does not disclose each

feature of Applicants' claimed invention and therefore cannot anticipate Applicants' claimed invention.

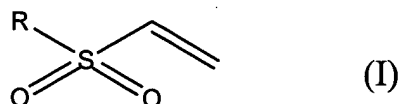
Further, Applicants continue to believe and assert that the present invention can also be distinguished from Kato based on the recitation in Applicants' claim 26 that the divinyl sulfone is contained in a liquid electrolyte, whereas the divinyl sulfone described in Kao is not contained in a liquid electrolyte. Applicants' claim 26 has therefore been amended to explicitly recite a liquid electrolyte. In contrast, Applicants would like to bring to the Examiner's attention that Kato describes in paragraph [0078] the use of a solution of vinyl sulfone simply as a starting material for preparing polyvinyl sulfone as a coating on the surface of a lithium ion conductivity solid electrolyte. Thus, Kato's ultimate described use of divinyl sulfone is as a coating, not as a component in a liquid electrolyte. This is confirmed in the Solution section of Kato, which summarizes the invention as a nonaqueous electrolyte secondary battery, where "an Li ion conductive solid electrolyte layer is formed on a surface of an Li composite oxide..." This approach is very different from that claimed by Applicants. For at least the above reasons, Applicants respectfully request that the Examiner's rejection of the pending claims over Kato be withdrawn.

**B. § 102(a) - Hamamoto**

Claims 18, 19, 22-27 and 30-34 have been rejected as being anticipated by JP 11-329494 to Hamamoto *et al.* ("Hamamoto").

The subject matter claimed by Applicants is fully supported by the disclosures of JP 11-198351, which is cited as a priority document for the subject application and which has a filing date of July 13, 1999. In particular, claim 1 of JP 11-198351 reads as follows:

1. A non-aqueous electrolyte characterized by comprising a non-aqueous solvent and an electrolyte salt dissolved therein, wherein the electrolyte salt is LiBF<sub>4</sub>, said non-aqueous solvent is mainly composed of a cyclic carbonate and a cyclic ester and a optionally linear carbonate and said electrolyte contains a vinyl sulfone derivative having the formula (I):



wherein R indicates a C<sub>1</sub> to C<sub>12</sub> alkyl group, C<sub>2</sub> to C<sub>12</sub> alkenyl group or C<sub>3</sub> to C<sub>6</sub> cycloalkyl group.

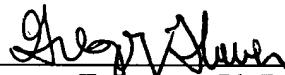
Because the amended claims of the subject application are supported by the disclosures of the priority document, the subject application may rely on the July 13, 1999 filing date of the priority document. This effective filing date is earlier than the November 30, 1999 publication date of the Hamamoto document. As such, Hamamoto cannot be used as § 102(a) prior art against the subject application and Applicants therefore respectfully request that this rejection be withdrawn. The Examiner stated that no English-language translation of the priority document was made of record. In fact, the English-language translation was filed with the parent application during prosecution of the parent application (09/569,185). The Examiner even commented on this translation document in her office action dated December 19, 2003. However, to ensure that the Examiner has a copy readily available, we have filed herewith another copy of the translation.

**2. Conclusion**

Upon consideration of the foregoing, it will be recognized that Applicants have fully and appropriately responded to all of the Examiner's rejections. Accordingly, all claims are believed to be in proper form in all respects and a favorable action on the merits is respectfully requested. Should the Examiner feel that there are any issues outstanding after consideration of this amendment, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

**Except** for issue fees payable under 37 C.F.R. 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-0310. This paragraph is intended to be a **constructive petition for extension of time** in accordance with 37 C.F.R. 1.136(a)(3).

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